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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,091	12/31/2003	Tae Soo Kang	DE-1391 CIP	1887

1109 7590 02/14/2005

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EXAMINER	
CHEVALIER, ALICIA ANN	
ART UNIT	**PAPER NUMBER**
1772	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,091	KANG ET AL.	
	Examiner	Art Unit	
	Alicia Chevalier	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machol (5,719,705) in view of Spoko et al. (6,436,541) and Applicant's background information in the instant specification.

Machol discloses an anti-reflective and anti-static structure comprising a glass substrate, a first layer of niobium pentoxide, a first layer of silicon dioxide, a second layer of niobium pentoxide, and a second layer of silicon dioxide. The first layer of niobium pentoxide has a thickness of 7-15 nm (which reads on ***about*** 3-5 nm). The first layer of silicon dioxide has a thickness of 15-40 nm (about 28-29nm). The second layer of niobium pentoxide has a thickness of 90-130 nm (about 112 nm). The second layer of silicon dioxide has a thickness of 55-105 nm (about 90 nm). See figure 1 and col. 1, lines 11-16, col. 2, lines 14-36, and col. 7, line 63 to col. 8, line 13.

Machol discloses the claimed invention except for an ITO (Indium Tin Oxide) layer between the glass substrate and the first layer of niobium pentoxide.

Sopko discloses an anti-reflective and anti-static structure comprising a substrate, a TCO layer of ITO (Indium Tin Oxide) and layers of different index of refraction to provide the anti-

reflective and anti-static properties (col. 1, lines 12-15 and col. 4, lines 5-52). The TOC layer has a sufficient thickness to have a sheet resistivity less than about 1000 ohms/square to provide the TCO layer with anti-static and electromagnetic shielding properties (col. 2, lines 20-25).

Applicant's specification in the background information, pages 1-3, describes a conventional anti-reflective and anti-static structure comprising a glass substrate, a layer of ITO, a first layer of silicon dioxide, a first layer of niobium pentoxide, and a second layer of silicon dioxide. The ITO has a typical thickness of about 19 nm.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an ITO layer between the glass substrate and the first layer of niobium pentoxide as similarly taught by Sopko to the structure of Machol because of the ITO layer would provide anti-static and electromagnetic shielding properties. Furthermore, it would have been obvious in view of the prior are teaching of Applicant's specification that the ITO layer have a thickness of about 19 nm (about 17-19 nm) because it is a typical ITO layer thickness construction in the art.

The phrase "for a display device" is an intended use. It has been held that a recitation with respect to the manner in which a claimed product is intended to be employed does not differentiate the claimed product from a prior art product satisfying the claimed structural limitations.

3. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Machol (5,719,705) in view of Spoko et al. (6,436,541) and Applicant's background information in the instant specification as applied to claims 1-6 above, and further in view of Hirai et al. (5,424,008).

The combination of Machol, Spoko and Applicant's background information discloses all the limitations of the instant claimed invention except that the glass substrate has an average surface roughness or peak-to-valley surface roughness.

Hirai discloses a glass substrate coated with antistatic/antiglare layers (background of the invention). The glass substrate has a surface roughness, which markedly improves the adhesion between the coating and substrate (col. 10, lines 31-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add a surface roughness to the glass substrate of Machol as taught by Hirai because it would markedly improve the adhesion between the layers and the substrate.

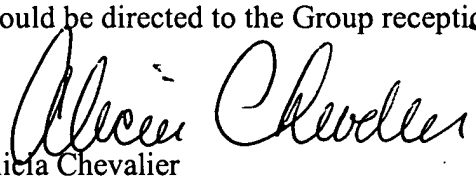
The exact average surface roughness and peak-to-valley surface roughness is deemed to be a cause effective variable with regard to the adhesion strength between the anti-reflective/anti-static layers and the glass substrate. It would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as average surface roughness and peak-to-valley surface roughness through routine experimentation in the absence of a showing of criticality in the claimed combined thickness. *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). One of ordinary skill in the art would have been motivated to optimize the average surface roughness and peak-to-valley surface roughness in order to improve the adhesion between the anti-reflective/anti-static layers and the glass substrate.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (703) 305-1139. The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:00 p.m. The Examiner can also be reached on alternate Fridays

If attempts to reach the Examiner are unsuccessful, the Examiner's supervisor, Harold Pyon can be reached by dialing (703) 308-4251. The fax phone number for the organization official non-final papers is (703) 872-9310. The fax number for after final papers is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose phone number is (703) 308-0661.



Alicia Chevalier

2/11/05